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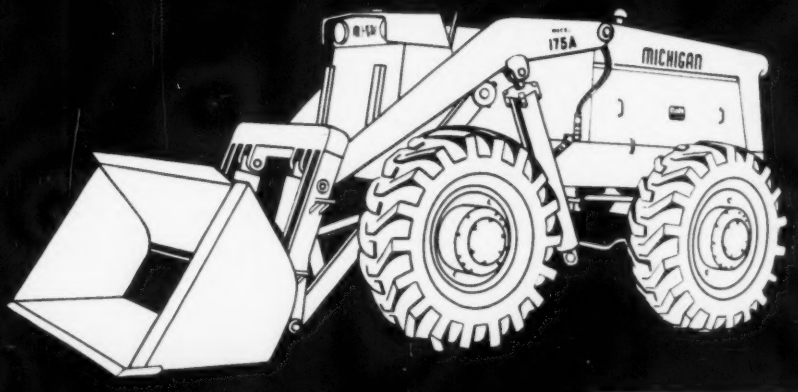

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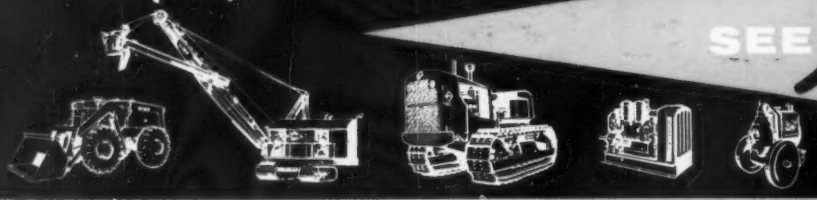

Star performers at successful mines!

Profitable coal stripping depends almost entirely upon the proper use of good equipment. For that reason, leading mine operators depend on Lima 2400s . . . sold, serviced and guaranteed by Highway.

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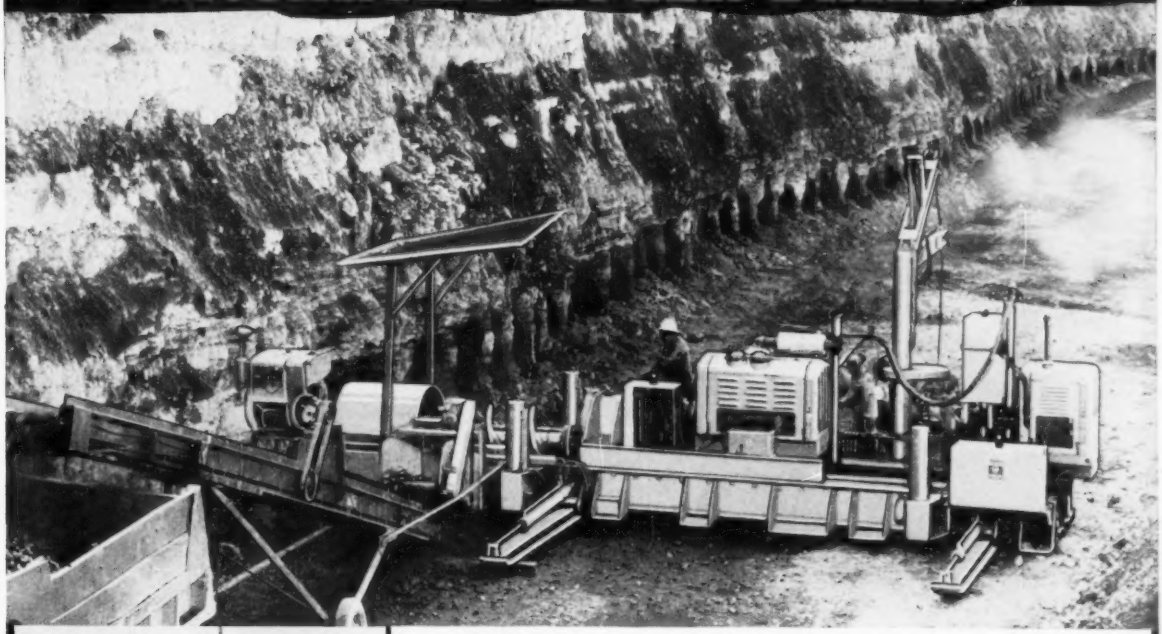

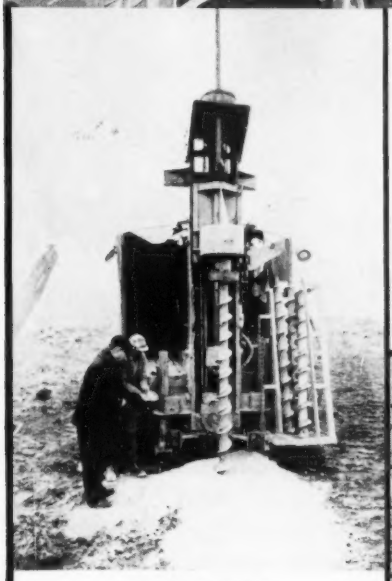

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MODEL 106-24

World's Fastest Heavy-Duty Vertical Auger Drill

Bores faster, deeper, larger dia. holes than any other auger drill. New gear reduction unit slows auger rotation for operation in hard rock formations. Drills 8" and 9" dia. holes readily in shale and sandstone formations, drills larger dia. holes up to 24" dia. in softer formations.

Write for Bulletin M-100

FINGER-TIP CONTROL

Gives Desired Rotating Speed Of Auger

HYDRAULIC FEED

Provides Any Speed Up To 6 Feet Per Minute Horizontal Feed Of Drill

COAL RECOVERY

"Walks" from hole to hole to auger high-quality Bonus Coal

An Ohio miner removes 550 tons of coal in each 8-hour working day with this model 14 36-42 x 12' McCarthy drill, operated by two men. He drills 42" dia. holes 144' deep. Auxiliary conveyor eliminates spillage at hole. It operates on either side of drill for working blind cut. Twelve different models of McCarthy Coal Recovery Drills mine low-cost "bonus coal."

Write for Bulletin M-101 and M-102

HORIZONTAL

MODEL 104

Lowest Drilling Costs per foot, Self-Propelled or Truck-Mounted

Bores up to 12" dia. holes to 150' depth faster, cheaper than any other horizontal drill. Requires less working space, saves many man-hours. . . operates easily in tight, hard-to-reach locations.

Write for Bulletin M-105

THE SALEM TOOL CO.

SOUTH ELLSWORTH AVENUE

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SALEM

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To get your Caterpillar* machines back on the job faster, replace entire Cat* assemblies instead of individual parts. You'll also reduce likelihood of future breakdowns, because genuine Caterpillar parts of latest improved design are used throughout Beckwith's exchange assemblies.

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REMEMBER, YOU PAY ONLY FOR THE PARTS AND LABOR REQUIRED TO BRING YOUR OLD ASSEMBLY UP TO OUR REBUILT SPECIFICATIONS

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PARTS ASSEMBLY EXCHANGE PLAN

Precision work is essential in turning exchange cylinder heads into "like new" condition. Only factory approved tools, methods and tolerances are used in putting new valve seat inserts into the cylinder heads.

HERE'S HOW IT WORKS:

1. Phone Beckwith for Caterpillar Exchange Assembly.

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COAL MINING

Vol. XXXV March, 1958 No. 3

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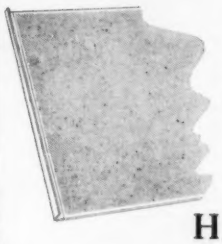

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Published by

Modern Mining Publishing Company

4575 Country Club Drive

Pittsburgh, Pa. Phone TU. 1-9411

P. F. JASIK, Publisher and Editor

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PAUL S. KEISER

1729 Ridgeway Road Havertown, Pa.

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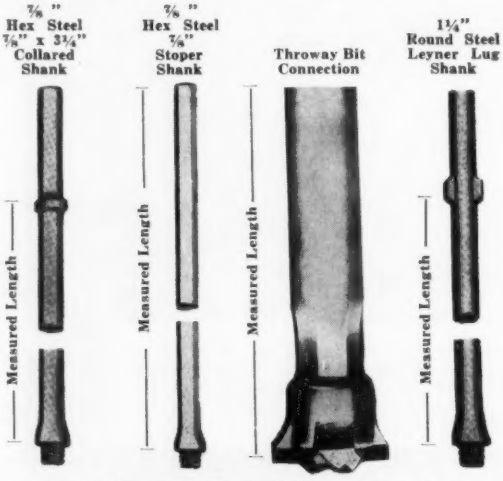

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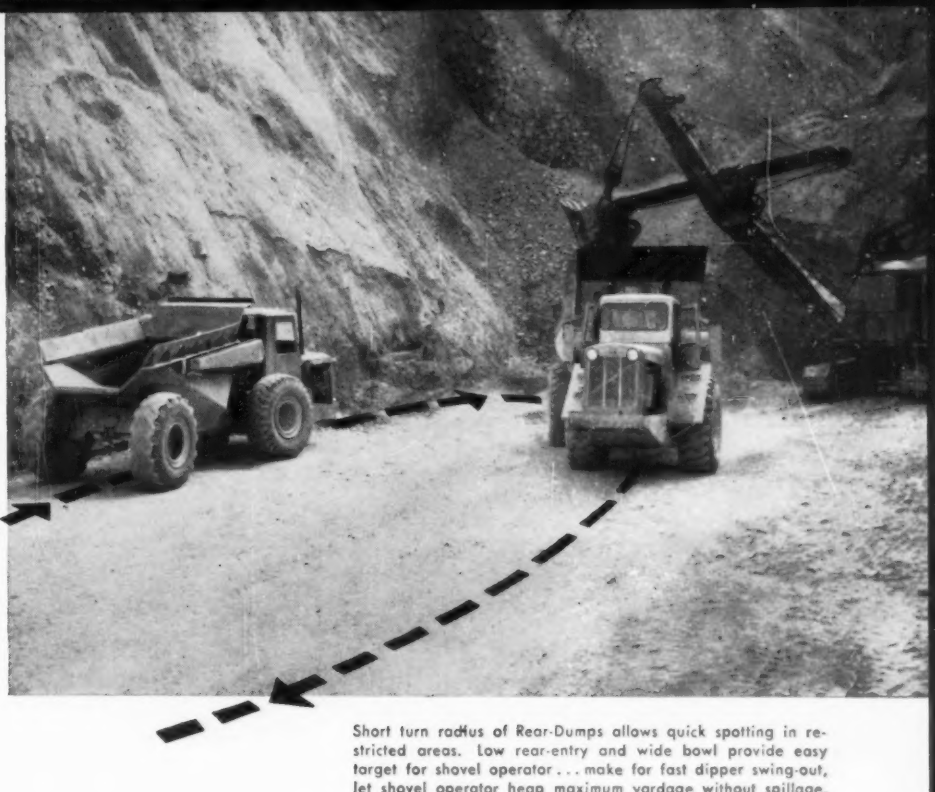
How to boost pit output... cut handling costs



Short turn radius of Rear-Dumps allows quick spotting in restricted areas. Low rear-entry and wide bowl provide easy target for shovel operator . . . make for fast dipper swing-out, let shovel operator heap maximum yardage without spillage.

The use of modern LeTourneau-Westinghouse Tournapull Rear-Dumps on your pit hauls can cut cycle time, boost production, and lower operating costs. Here's how:

Greater maneuverability — Positive electric power steer, through geared kingpin, permits prime-mover to pivot at right angles for short 90° turns. As a result, unit makes continuous U-turn in less space than Rear-Dump's own length. In dump position, it turns in only about ⅔ of overall length!

There's no need for turntables or elaborate turn-around areas. You spot faster at the shovel, dump faster, and get away faster from pit or dump. On the haul, you make hairpin turns with safety — complete cycles faster. Time saved adds up to extra trips per shift, greater production . . . with no increase in manpower or equipment investment.

Speeds loading — Low, wide bowl permits shovel bucket to swing in low for faster loading. It permits quick bucket swing-out, even while dipper-door is still open. And because of large target area, spillage is greatly reduced. Production delay during the day for clean-up of pit floor is minimized.

Dumps fast, clean — Flick of switch on control panel instantly activates point-of-action electric-hoist motor. Body raises quickly, to desired angle. At full dump position, edge of bowl is low behind rear wheels . . . material cannot roll forward to lodge against wheels, nor pile under rear end. Streamlined body sheds stickiest material readily.

Resists body shock, damage — Shovel operator does not have to take it slow and easy when loading. Rear-Dump body is ruggedly built. Simplicity of Tournapull Rear-Dump construction permits using steel otherwise used in frame and sub-frame. In L-W Rear-Dumps this material is used to build greater strength into the bowl itself. Body is all steel — no wood fillers. Floor is lined with heat-treated tool-steel strips, welded to solid billets laid over heavy steel plate.

Ask for complete information

If you're interested in increased production and lower handling costs, it will pay you to investigate high-production Tournapull Rear-Dumps. 3 sizes: 11, 22, and 35 tons. Write for full specifications.

Tournapull—Trademark Reg. U.S. Pat. Off. R-1452-M-1

Big single, low-pressure tires...exclusive power-transfer differential . . . and 90° electric wagon-type power steer enables Rear-Dump to safely and steadily haul through muck, rock, and soft fill.

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Do You Know?

● Fly ash, the waste from burned pulverized coal, is now yielding substantial crops, the British Electricity Authority reported.

The ash, gathered from the Authority's power stations, is covered with a three-inch layer of soil, sewage sludge and industrial sludge. It has yielded nearly 13 tons per acre of grass and clover within two years.

After being covered with 12 inches of industrial sludge and three inches of soil two years ago, the ash has yielded more than 15 and a half tons an acre of clover and grass.

Another use found for the waste fly ash—there are more than a million tons a year to dispose of in Britain—is in soil stabilization projects for road building. A road built of five per cent cement, 10% ash and 85% soil has been in service at a power station for 12 months without sign of deterioration.

The Authority is now planning to make building bricks of 80% ash to 20% clay. These can be produced in any color and are said to be in some cases both better and cheaper than ordinary building bricks.

Some change in mankind's inherited characteristics may be needed for humans to live in the scientific age of today and tomorrow, Dr. J. W. Buchta of the University of Minnesota said here today.

Speaking at a joint session of the American Physical Society and the American Association of Physics Teachers here, Dr. Buchta analyzed the effects of modern technology, including the launching of sputniks, on U. S. society.

Although science and technology advance from the shoulders of past generations, Dr. Buchta said the evolution of the human mind has not kept pace.

"Is there any evidence," he asked, "that we have greater innate abilities than those who lived 2,000 years ago? Is our scientific society acquiring characteristics such that because of human limitation it cannot maintain itself? Are we, as have some biological species, developed lethal characteristics?"

To illustrate this situation, Dr. Buchta pointed out that today's housewife needs to be master mechanic to manage her kitchen and laundry, that the automobile repairman needs to be an engineer to understand an automatic transmission.

He questioned whether the same furor concerning science and education that followed the sputnik launchings would have occurred had the Russians been the first to announce a vaccine for polio or if they would now find the cause and cure of cancer.

Education in the sciences, Dr. Buchta said, can and should be improved, but the present system should not be blamed for the time gap between the first sputnik and a U. S. satellite. He emphasized that a satellite launching is not a scientific breakthrough, but a major engineering feat; requiring great skill and mastery of instruments.

Newton (who died in 1727) "could have calculated the energy needed to launch it," Dr. Buchta emphasized.

The contributions of the inventor and engineer, he pointed out, are of a different kind from those of the scientists, whose discoveries, to say nothing of their effects, cannot be predicted.

HERE AND THERE IN THE COAL INDUSTRY

● James W. Damron, age 61, chairman of the board of the W. M. Ritter Lumber Co., died of a heart attack Jan. 20, at his home in Roanoke,Va. Mr. Damron was associated for many years with Red Jacket Coal Corp. and was chairman of the board when that concern was merged with Island Creek Coal Co.

● The Bureau of Mines reports that the latest figures compiled show that American coal strip mines excavate enough material in a single year to create five Panama Canals. These data are taken from a survey conducted every five years regarding the average thickness of coal seams mined, the average output per man-day from all mines, average overburden removed in strip mines and other similar data. Copies of the publication, I. C. 7812 "Thickness of Bituminous-Coal and Lignite Seams at all Mines and Thickness of Overburden at Strip Mines in the United States in 1955," will be furnished upon request to National Coal Asso. Washington, D. C.

● Total output of Coal in Britain, including opencast, last year was more than 223,600,000 tons—1,600,000 higher than in 1956.

Deepmined output at 210,100,000 tons was slightly higher than the 1956 figure of more than 209,900.000 tons Opencast output at 13,600,000 tons was the highest in any year since this kind of mining began in Britain in 1942. Opencast mining is described in the 1957 review of the British National Coal Board as "the most efficient and economical method of winning the shallower coal deposits."

The mining industry, states the review, is benefiting from the technical progress that has been achieved by capital investment and power-loading, and demonstrates conclusively that it is equipped and has the capacity to produce consistently high outputs.

● Rounding out nearly 70 years in the coal business, Richard T. Todhunter, Sr., has retired as president of Barnes & Tucker Coal Co., at Barnesboro, Pa. In a career that began at the age of 12 as a trapper boy, Mr. Todhunter has held virtually every position in coal mining. Even now, although retired, he remains on call by his company as a consultant. Mr. Todhunter was born in England in 1876 and came to this country in 1880. He settled in Barnesboro in 1905 when he became foreman of two Barnes & Tucker mines. His climb through the executive ranks was steady and in 1946 he was elected president of the company. Two sons are following in his footsteps. They are Richard, Jr., vice-president-operations, and John, superintendent of the Company. Barnes & Tucker has been a member of National Coal Association for many years, and Richard, Jr., is a member of the NCA board of directors.

PROTECTION AGAINST SILICOSIS

An improved means to preventmine workers from developing silicosis, a chronic condition of the lungs caused by the inhalation of air containing finely divided particles of silica, has been found.

Protection against the dreaded disease came in 1939 with the discovery that pure metallic aluminum introduced in the lungs of miners could reduce the solubility of the silica particles in the lungs. A totally practical method for using aluminum powder to counteract the silica, however, has been unsatisfactory to date claims John W. G. Hannon of Washington, Pa.

Now, however, Mr. Hannon has perfected what he believes to be the best utilization of aluminum dust to protect a mine worker against silicosis. Through a series of discoveries, he uses an aluminum oxide dispersed into a confined atmosphere at a velocity of at least 43,000 feet per second and in an amount at least equal to 0.3 gram per 1,000 cubic feet of atmosphere.

Mr. Hannon was granted patent No. 2,824,043 for his aluminum oxide treatment and assigned the patent rights to McIntyre Research Foundation in Toronto, Canada.

This 71-B diesel-powered coal loader, equipped with 5¼-yd. coal dipper, scoops up coal fast at a Kentucky mine. Ward Leonard electric 71-B also available.

71-B Puts Power to Work

To Speed Up Coal Loading

Torque converter drive on the 71-B balances speed and torque to meet varied loading demands in the coal fields. It automatically selects the maximum engine speed within governed limits to deliver more power continuously to the dipper lip for greater overall output. The torque converter also cushions the engine and main machinery against shock loads . . . eliminates engine stalling.

For greatest operator efficiency, the 71-B is equipped with full air control, not just air assist, on all operating clutches and steering and digging brakes. This permits fingertip control of the load . . . boosts operator efficiency.

For a full rundown on the 71-B coal loader, contact your Bucyrus-Erie distributor now. He will be glad to outline the many 71-B features that can move coal faster, make more money at your mine. Bucyrus-Erie Company, South Milwaukee, Wisconsin.

545E58C

A Familiar Sign . . . BUCYRUS ERIE *. . at Scenes of Progress*

Simple, balanced design allows this 6-yd. Manitowoc Model 4500 drag to get over-flowing buckets right at the edge of the cut.

MANITOWOC DESIGN PUTS ALL THE POWER TO WORK

There's no wasted horsepower with a Manitowoc Model 4500. Intelligent design forethought has reduced power-robbing extra parts throughout this big capacity mining machine. In fact, there are only 15 gears and 8 sprockets! And *only working gears turn* . . . Manitowoc's exclusive slide pinion arrangement disconnects all others until their function is needed. Even many *small* excavators don't have simplicity of design like this!

Powered by a single diesel power package rather than a series of independent electric motors, the 4500 has the get up to go anyplace . . . unhampered by trailing electric power cables. There's no downtime due to the failure of delicate electric switches, control boards or miles of wires. Put more power to work in *your* mine with a fast digging, long reaching Manitowoc 4500 shovel or dragline. A call to your Manitowoc distributor will bring all the facts.

MANITOWOC ENGINEERING CORP. Manitowoc, Wis.

GREATER SPEED AND POWER—LESS DEAD WEIGHT

TRUE MOBILITY TO MAKE MINING PROFITABLE ANYWHERE

GREATER STABILITY PRODUCES FULL BUCKETS, LOWER GROUND PRESSURE

DRAG TRAVELS ANYPLACE WITH A LOW, LOW TRAVEL CLEARANCE OF ONLY 17' 2"

BONUS CAPACITY IN ANY MATERIAL—MANEUVERABILITY OF A SMALL MACHINE

BASSLER EQUIPMENT CO.
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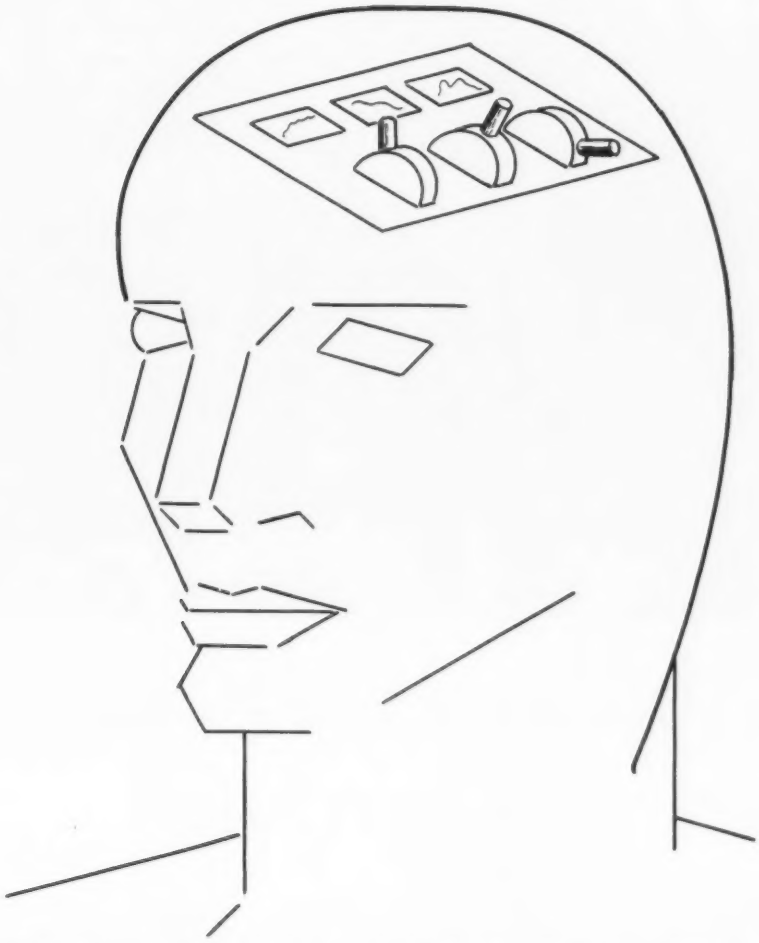
the APPLICATION of TIME and the WILL TO PROGRESS are lacking in the Coal Mining Industry



Applying time, the most fundamental concept in all economic theory, to the aeronautical age in launching the first earth satellite, Russia appears to be far ahead of the United States in business calculation and economic theory—viewed in the broad perspective of competition.

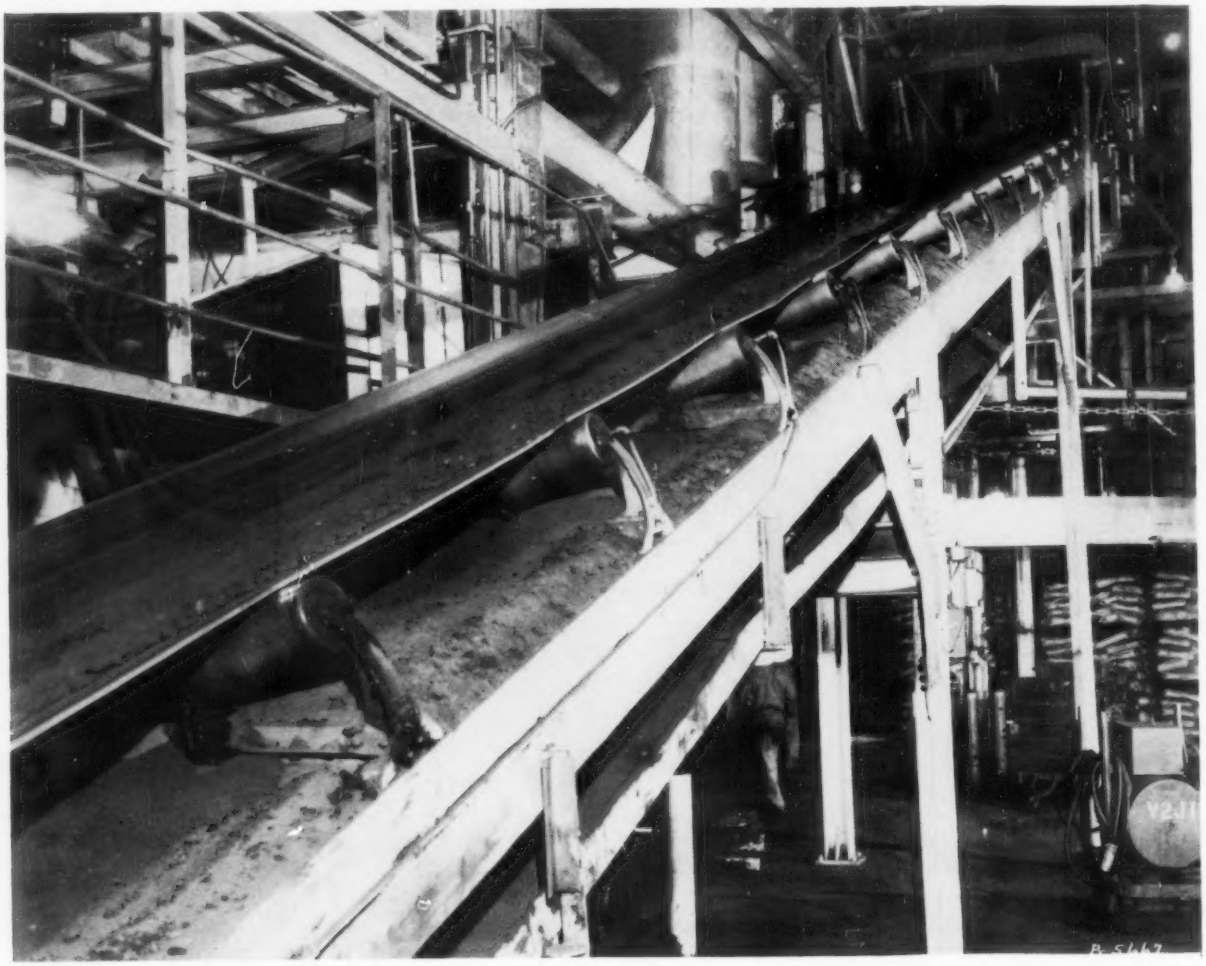
This development poses a grave warning to American business as well as to the government, particularly to the coal mining industry which has a production (labor) cost far greater than its principle competition.

Electronics and instrumentation are the key to the competition of the American coal industry which has not yet begun to tool up for the severe competition it is going to encounter, timewise or businesswise.

The American coal mining industry is squandering the element of time. The question before the industry is whether it is going to learn its lesson now or wait until competition teaches it the hard way.

The worst and most neglected shortage of skills in the industry today is on the electronic-instrumentation level. Progress has brought about unprecedented demand for control instruments. Master-control systems are leading to the centralization of instrument panels where one or more men can supervise an entire operation. Trends toward automation are making necessary miniaturization of control instruments. As more and more instruments are grouped at one point, smaller instruments become more in demand to occupy less space.

Better manufacturers of consumer parts are using automatic instruments to inspect every part to insure freedom from breakdown. The coal industry has much to learn from other presently advanced industries, if it would show the will to do so.



The conveyor belt has produced considerable savings in labor, but like many new methods, it has created its own drawbacks. The conveyor belt's worst problem has been "carryover"— waste material which has not been cleaned off when the load is dumped. This has been a costly maintenance problem.

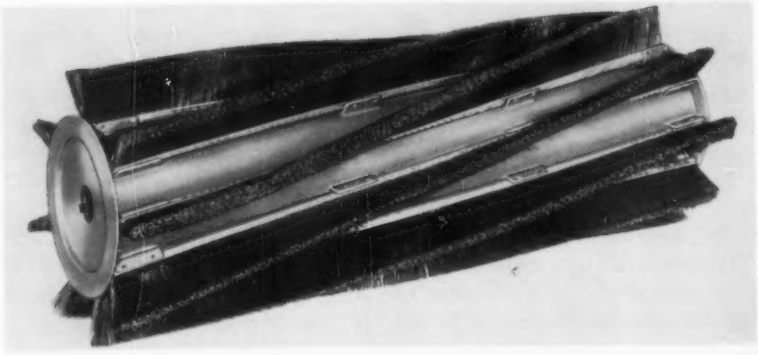
How to lick That Problem of

"CARRYOVER"

on

CONVEYOR BELTS

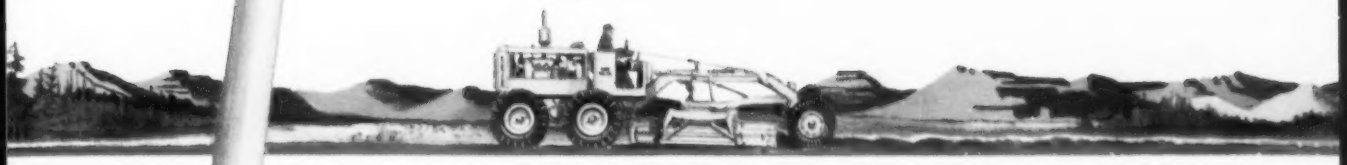
The Rota-Master brush is designed with an interrupted face area to allow the individual strip brushes to flex and clean themselves.



Modern methods in material handling equipment have produced considerable savings in labor, but like many new methods have also intro-

The secret of
successful grading...

positive control



Ask your CATERPILLAR Dealer to show you how
Cat Motor Graders can give you more production,
lower operating costs, more profits.

positive control

FROM PIONEERING TO FINISH GRADING

▲ *Finish blading* *Ditching* ▼

NEW CAT MOTOR GRADER FEATURES

New Cat No. 12 and No. 112 Motor Graders have many conveniences that make operators more efficient, reduce their fatigue and increase production. Here are a few: newly designed, adjustable seat for maximum operator comfort. Larger, insulated cab has more room, reduces noise and has 31% more window area for greater visibility. Newly designed front axle components have greater strength, longer life.

In addition, the No. 12 has a longer frame for more blade clearance when the grader is equipped with large front tires. Its tandem is 4" longer to provide additional room for optional 14.00–24 tires equipped with chains.

Other features include in-cab, push-button starting with choice of direct electric or gasoline starting engine; optional power shift moldboard; tubeless tires; dependable Cat Engine.

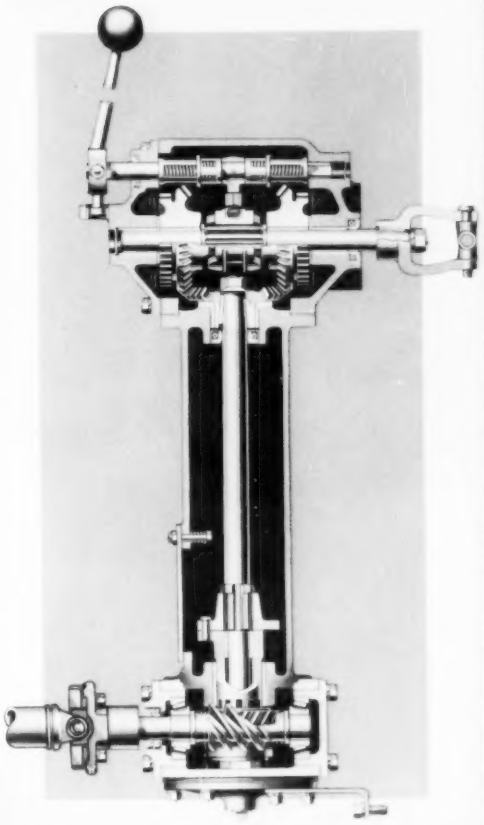
MECHANICAL CONTROLS

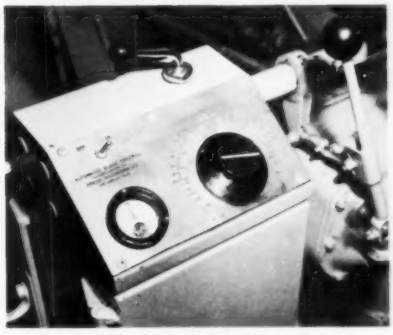
for fast, accurate blade positioning

Positive control *is* the secret of successful precision grading . . . and that's where Cat Motor Graders excel! Every critical operation—from blading to steering—is controlled mechanically to permit the fine adjustments and split-second maneuvering essential for high-quality work. Fast, accurate mechanical controls let you ease the blade into any desired position, a fraction of an inch at a time, or go from ditching to bank cutting in seconds. Positive, anti-creep brakes instantly hold the blade wherever set. Blade supporting circle is power operated by a self-locking worm and gear, and mechanical controls lean and hold the front wheels.

Controls are located up front within easy reach of the operator while seated. And from there he can see the front wheels—the road ahead—the blade—without straining.

Positive controls, combined with the right balance of power, weight and speed of Cat Motor Graders, give you a machine that will build more miles of roads and ditches—and make you more money!





Preco Automatic Blade Control: note simplicity of control—just dial the grade.

PRECO AUTOMATIC BLADE CONTROL

available for CAT Motor Graders*

Another aid to positive control is the Preco Automatic Blade Control—available as auxiliary equipment for Cat No. 12 and No. 112 Motor Graders! The operator dials the slope desired—the control does the rest, keeping the blade at the dialed position. Inside and outside ditches, as well as road surfaces, can be finished to slopes up to 1½ to 1. Accuracy of control is maintained to within ⅛″ in 10′. And it responds to road variations faster than the human hand—more accurately than the eye.

Owners report the Blade Control saves 50% to 80% on road finishing costs. With it on the job, less staking and fewer passes are required. It can be used between forms for finishing subgrades—one form, shoulder, curb or stake line can serve as reference for the entire road with the Preco Automatic Blade Control.

We'll gladly demonstrate this newest reason why Cat Motor Graders set the standard for the industry.

CATERPILLAR*

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LOOK AT THE FINAL COST FIRST

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We are ready at any time to help you select the Cat Motor Grader to match your jobs . . . to show you dollar for dollar—pound for pound—feature for feature—the best buy *is* a Cat Motor Grader! *See on your own job* how its simplicity . . . its ability to do quality work . . . and its economy and ease of operation can help you!

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It is our responsibility to stock an ample supply of genuine Cat parts for your Caterpillar Motor Graders. This is your assurance that the machines you own will have maximum on-job hours throughout their lives. And Caterpillar parts are made right—to last longer. It pays to use genuine parts!

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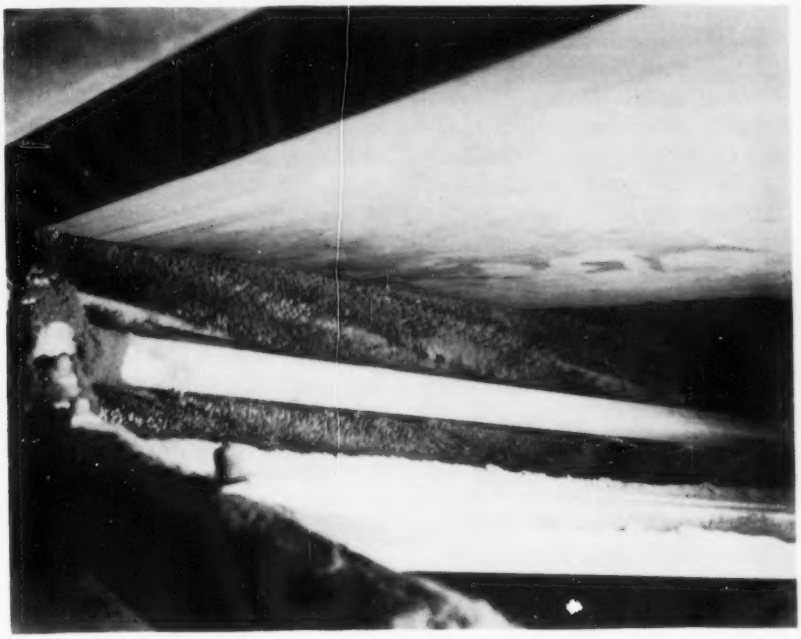


A Rota-Master is on the job cleaning a conveyor belt thoroughly and efficiently at an appreciable cost savings when considering maintenance hours saved.

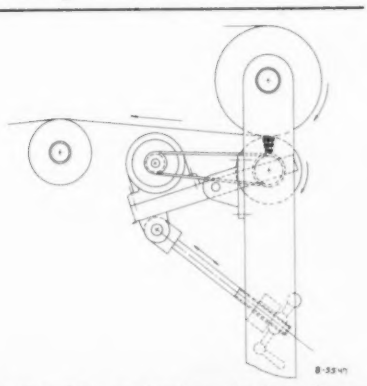
duced new problems. The modern rubber or fabric conveyor has simplified material handling to the point where the direct labor involved has been reduced to a minimum. However, this new method has caused an old established department new problems. The maintenance department of modern conveyorized plants must cope with the problem caused by "carryover."

"Carryover" is extremely familiar to all who must work with conveyors handling materials such as sand, coke, ore, coal, chemicals, grain and many other items. "Carryover" is the material which adheres to the belt after the belt has passed over the header roll and unloaded. "Carryover" adheres to the snubber roll and often on the idler rolls. In addition, the material can drop on the floor area below, or can cause serious dust problems which can effect the efficiency of other equipment in the area, such as in foundries, lumpy sand from a belt can cause poor cores to be made. Build-up on the snubber roll can cause excessive wear of the belt and poor "trim" of the belt with resultant lower belt speeds.

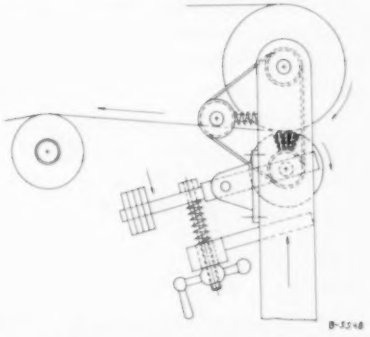
To combat this problem many devices have been made and tested. Rubber or steel scrapers have been mounted on the return side of the conveyor. While these scrapers have had a small amount of success, there are several major disadvantages. First, they do not do a completely satisfactory job of removing the carryover. Second, they wear excessively and can be detrimental to the belt. (A spliced or repaired belt can occasionally catch and either become damaged or damage the scraper). Rotating steel flappers have been made to cause the belt to vibrate on its return trip to shake the material off. This approach has had little success because it does not correct the problem but only minimizes severe cases of "carryover." If the material is tacky, it will shake some of it loose, however, this material will fall on the floor below, or on the snubber roll which still must be cleaned.

The most successful method to date is with the use of a new style brush developed by the Osborn Manufacturing Company, Cleveland. There have been unhappy experiences with conventional rotary brushes in that they picked up the "carryover" and soon were loaded, with the result that they were no longer effective. The brushing unit which can do a very satisfactory job of cleaning is a unit type brush made up of heavy duty strip type brushes formed helically. A good example of this construction is shown in Fig. 2. The interrupted face allows the individual strip brushes to flex and clean themselves. This unit has a unique sweeping type action different from rotary brushes, which make them so effective for this work. Synthetic materials such as Osborn's "Korfil" or Dupont's "Tynex" have made possible brushes that will last for a year or more on many conveyor belt operations.

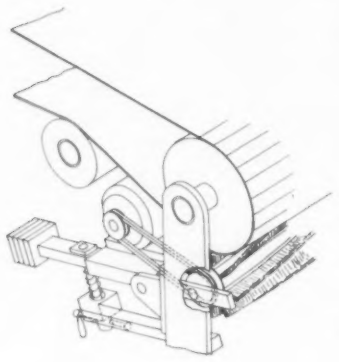
These new brushes have found one of their greatest uses to date in automatic foundries where belts conveying core sand are in use. A typical conveyor system is shown in Fig. 1. Coke conveying belts are ideal appli-



In this third application, the Rota-Master Brush unit is driven by a separate power source and brushing pressure is adjusted by a manual screw arrangement. This method is used only when frequent inspection of the brush and conveyor belt is made.



This drawing illustrates the basic low cost maintenance method for obtaining controlled brushing pressure without frequent inspection of the brushing unit. The brush is driven by a belt connected to the head roll, and held in contact with the belt by a counter weight which is adjusted for maximum brush pressure by a dampening spring.



The Rota-Master brush is driven in this second application by a separate power unit. The brush's surface pressure is controlled again by a counter weight regulated by a dampening spring.

cations. In one such application, shown in Fig. 3, a labor saving of one and a half hours per day is being saved on one belt. Formerly, a man was required to shovel the "carry-over" into the hopper, this is no longer required.

In a chemical plant, conveying a wet alkaline mixture, the rolls had to be tediously cleaned twice weekly. After the brush was installed, maintenance was reduced to a quick cleaning once a month. These are just a few of the potential applications that substantial savings have been obtained.

The brush should be located immediately after the conveyor has dropped its load. Usually, this is a short distance from the driving roll and ahead of the snubber or take up roll. This location is important for two reasons; first, the belt should be as flat as possible, and this occurs as it passes over the driving roll, second, the brush will keep the take up roll and other rolls cleaner if it is located ahead of them on the return side. These rolls are subject to material being pressed on to them, and serious problems can occur if they aren't kept clean.

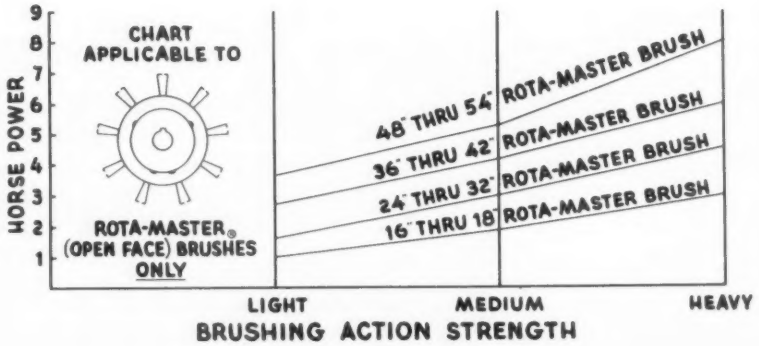
The use of brushes for this work is extremely low in cost when considering the savings obtainable in terms of longer belt life, and lower labor costs for maintenance of plant and equipment. There are a number of ways to install the brushing unit dependent on the conveyor, frame and location of the header roll and snubber roll. Shown in Figs. 4, and 5 and 6 are three examples of methods of mounting and driving. Fig. 4 illustrates a low cost method, and a very effective one, for obtaining control of brushing pressure without frequent inspection. The unit is driven by belts from the header roll. A counter weight is used to keep the brush in contact with the belt. A dampening spring is located to maintain uniform brushing of the surface of the conveyor. As the brush wears, the counter weight automatically compensates for the wear and keeps the brush in contact with the belt. If it is not practical to drive from the header pulley, the method illustrated in Fig. 5 can be used. The same principle is used as that discussed except a separate motor is used to drive the brush. One important detail which must be planned for with this method, and that is the brush drive motor must be wired so that it will cut off when the conveyor is stopped. The method shown in Fig. 6 provides a separate drive for the motor. Also, brush wear and brushing pressure is made positively thru a screw arrangement. This method is recommended where the material is quite tacky, and frequent inspection of the brush and belt can be made. The screw arrangement assures positive pressure, which results in good cleaning.

Osborn's trade name for this new brush is "Rotamaster." They have incorporated a number of unique features which are of particular interest to companies having a number of different size belts. The brushes are made in 16-in., 18-in. and 24-in. widths, consequently, they can be ganged together to make whatever belt width that is required for refilling the units by the maintenance department, thereby obtaining an additional labor savings.

Specifications on Rota-Master Brushes. Rota-Master Brushes Horse Power requirements

Face Width	Outside Diameter	Arbor Hole	Fill Material	Number of Master Strip Brushes	Angle of Helix
16"	10½"	1½" round with ⅛" x ¼" keyway	.028 Tynex Nylon .035 KORFIL*A	9	30°
18"	10½"	1½" round with ⅛" x ¼" keyway	.028 Tynex Nylon .035 KORFIL*A	9	30°
24"	10½"	1½" round with ⅛" x ¼" keyway	.028 Tynex Nylon .035 KORFIL*A	9	30°

KORFIL— Osborn-engineered fill material, used exclusively in Osborn Brushes . . . harder working . . . longer lasting. Water, petroleum solvents, greases and oils do not appreciably injure the usefulness of KORFIL.



*This chart applies to synthetic and fiber filled ROTA-MASTER brushes. Wire filled brushes normally require additional horse power because of the added weight as well as the requirements of the job.

BUSINESS COURTESIES PAY OFF

By ERNEST W. FAIR

"Why is business courtesy so rare today?" a coal company executive asks us in a letter and cites an example.

"Day after day there comes to my desk enquiries from other firms regarding all sorts of matters," he explains, "It is only one in a hundred that ever extends the business courtesy of enclosing a self stamped and addressed envelope.

"To my way of thinking, if it isn't worth a self stamped and addressed envelope for that information, it isn't worth my time and effort to obtain the information. When I find one who has the courtesy to extend that 'courtesy' to me, I will put myself out to obtain all of the information that is possible."

One reason for such a situation in business today is that it is so easy, in the midst of hurry and routine, to let courtesy slip out of our way of doing things. Before we know what has happened just pure neglect has created such situations.

Not only every coal company executive but most employees can well use a review of business courtesies from time to time—keeping handy a check list of the more important ones and referring to it from time to time to make sure we too have not "slipped" in this regard.

From the foregoing executive as well as a number of others here is a list of such business courtesies. All represent the little acts on our part which not only lead to more pleasant business relations but insure our obtaining maximum co-operation from others with whom we must deal—our customers, the people in our own company and those in other organizations.

Use self addressed, stamped envelopes whenever sending a request for information or data to some one else and particularly so where answering the request requires considerable effort on the part of the other fellow. This is most important where we are requesting something for which the other fellow will receive no direct compensation.

Respect the value of the other fellow's time. Don't ask him to do something (without charge) which takes up a great deal of time and effort. These are the things it is courteous to pay him to do; not expect free.

Avoid wasting the time of individuals and firms with curiosity — inquiries or requests—keep it strictly limited to business inquiries. Too often we make such requests which have little bearing on direct business.

Reply promptly or act promptly on requests of others. "There's no hurry on this, it can wait," is careless discourtesy for we can never be the judge of whether or not promptness is important insofar as the other fellow is concerned. It's just plain good business courtesy to grant the promptness to others we expect ourselves in all business matters.

Business exists solely when it makes a profit on what it does—it's very poor business courtesy to ask for or expect something free the

other firm normally is paid to do. This is one of the most abused of all business courtesies between executives of different firms with one another.

Be as clear and definite as you can when answering requests for information from others for an evasive reply to a request for information is valueless to the other fellow. Sometimes caution from the legal angle makes such a reply proper but this precaution has little application to the ordinary routines of business. Nothing is more discouraging than to expect some definite data from someone else and receive information which is not only indefinite but valueless as well.

When the occasion arises where one cannot grant an immediate telephone or letter request one should say so frankly so that the other party can make other arrangements. It's an infuriating thing to be stalled on such business matters and then ultimately be given no satisfaction whatsoever.

Take the time to be friendly. Gruff, sharp attitudes may be all right in a company of Marine recruits but they have little place in business. Friendliness is a top business courtesy that sets off successful business executives and business firms from the run-of-the-mill.

Avoid pulling the "emergency" lever unless you really mean it; such action infuriates one later to find out that it was all exaggeration and that no genuine "emergency" ever existed. Chances are we will receive little if any co-operation from the other party after doing this business discourtesy just once.

Let the other fellow know who you are. Have you ever wanted to make a personal contact with someone immediately after receiving a letter from that individual but couldn't make out the signature theron? Naturally you didn't make the contact and probably the other fellow lost some valuable business because he gloried in an unreadable signature to all his letters and memos.

"When you make a promise in business—keep it!" is suggested by one executive friend of ours as a most important business courtesy. He points out that any definite commitment should be followed up as promised or not made in the first place. When it is given we present assurance to the other fellow that he can expect us to come through on our promise.

When writing notes or letters seeking data or information be sure to always supply all the facts. "Send us a widget for our grosmo machine" is the kind of request that not only fails to secure the "widget" for us immediately but causes high blood pressure elsewhere. If we had specified the model number of the machine and details as to the particular "widget" we desired in the first communication it could have been shipped immediately; instead considerable (and useless) follow-up correspondence was necessary.

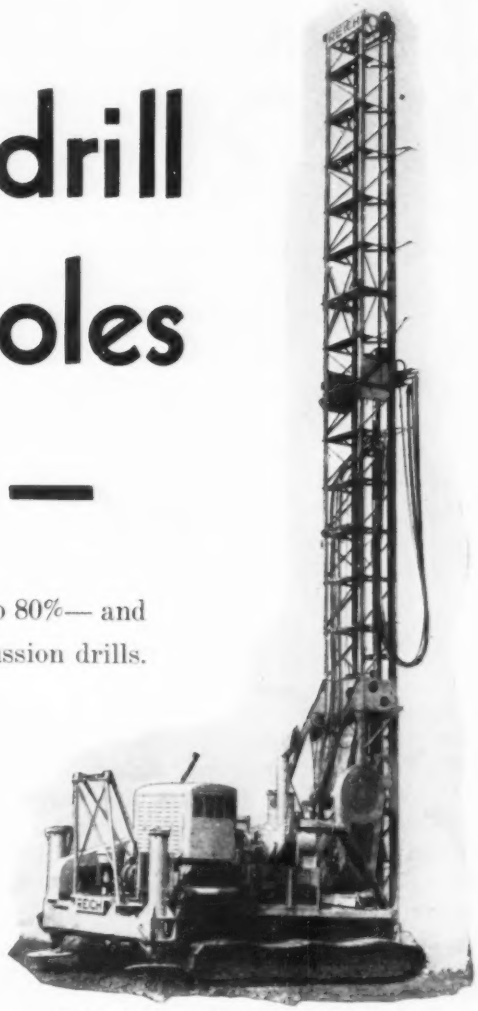
When you "business borrow" pay back immediately. This includes everything from office machines to technical books. The chances are the other fellow or firm needs them just as badly as we do and if we let them lay around for days before returning them we have put that other individual to great inconvenience. It's always a mark of good business courtesy to make prompt return on any such borrowed items the moment we have finished using them.

Make it easy for the other fellow to supply information. Have printed forms made up covering areas in which we make many such requests. It's a lot easier for someone to fill in such a form with the requested information than it is to sit down and write it all out in a letter. Not only this but we are assured we will obtain just the information we desire when following such a routine.

TWO TEMPORARY HOPPER BINS, located alongside Route 88, New Eagle Borough, Washington County, are being used by U. S. Steel's Frick District for handling slate and coal taken from the company's newest mining development—MAPLE CREEK MINE. The Washington County mine, now undergoing initial development, is expected to go into production in 1959. Annual production is estimated at 500,000 tons of mine-run coal by the end of 1959. Roy Wilson, right, field construction engineer, and William Snyder, construction foreman, keep a day-to-day check on the mine's progress, both above and below the earth's surface.

You CAN drill bigger blast holes a lot faster —

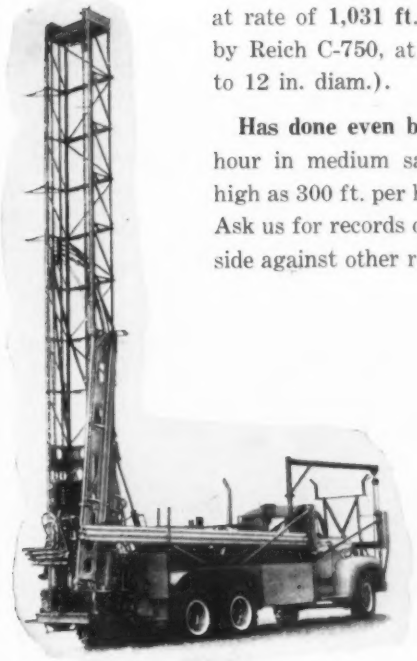
see Reich rigs outdrilling other rotaries by 50% to 80%— and putting down 4 to 8 times as much hole as percussion drills.



Reich C-750. Extra heavy self-propelled crawler drill.

260 ft. of 7⅞" hole in 121 min., in medium hard sandstone, 5 holes 52 ft.— that's at rate of **1,031 ft. in 8 hr.** (recently done by Reich C-750, at right, which drills holes to 12 in. diam.).

Has done even better— over 200 ft. per hour in medium sandstone and shale— as high as 300 ft. per hour in softer formations. Ask us for records of Reichs drilling side-by-side against other rotaries, also spudders.



Reich T-650. Heavy truck-mounted drill.

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(You'll out-drill the machines being built like the Reichs of several years ago.)

KNOWLEDGE

of Scientific Principles

is Mandatory in

COAL INDUSTRY

There is good reason to doubt that men in the coal producing industry understand as much as they should the economics and the scientific principles underlying the needed educational structure for the future mining personnel. Knowledge of these economic and scientific principles is mandatory if the coal industry expects to do the job expected of it in the future.

The idea of plenty for all mankind is the dominant discussion of science. Discovery and communication to the rest of mankind is the prime purpose of the scientist.

The coal industry needs a trained personnel to carry on more of the kind of research that has been explored so rewardingly and exploited in a thousand ways by modern technology.

To prevent the coal industry from slipping further into a minor position in science and technology, we need a thorough reform of the present educational system from the grade school through college, as well as a means of assurance that talented pupils will not be barred from promotion for reasons of race, religion or financial standing.

Education in the sciences and mathematics in schools and universities will have to be intense and prolonged. Those who show talent will have to be given the opportunity to go into more advanced work and those who attain professional standing will have to be handsomely rewarded, both in material benefits and in status in the community. Basic and applied research will have to be supported.

RAY HANN moves his yard locomotive up for a string of mine cars loaded with slate and coal taken from Maple Creek Mine, New Eagle Borough, now undergoing basic development. This newest coal mine of U. S. Steel's Frick District is located in Washington County and along the Monongahela River. Initial production of coal for Clairton Works' coke plant is contemplated in 1959.

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2—Size 1 Duckbills with swivels

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1—Tank Car type Storage Tank

4/0 Trolley Wire and Fittings

1—Jeffrey MH 88 Locomotive — Armour Plate Frame

1—Jeffrey MH 96 Locomotive — 4 Ton

1—Goodman 1600-K Locomotive — 3 Ton

1—Goodman 30-B Locomotive — 5 Ton

1—Goodman 32-I-4T Locomotive — 8 Ton

1—WHSE 907 Locomotive — 10 Ton

1—GE Locomotive — 6 Ton

3—Sullivan Hoists — Rope Speed 100′ PM

1—HKL Car Spotting Hoist

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2—Joy 32E15 Shuttle Cars, rebuilt.
1—Joy 32E16 Shuttle Car, rebuilt.
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1—Joy T-2-5 low pan Cat Truck.
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2—Joy T-1 Standard Cat Trucks, 220 AC.
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2—Joy 11-B Cutting Machines, like new.
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2—Goodman 512 Machines, with Bugdusters.
1—Goodman Machine on Cats, 31" high. All hydraulic.
1—Goodman 512 cutting machine, perfect.
2—Goodman 512 cutting machines, 220 volt A.C.
1—LeeNorse low vein Machine Carrier on rubber.
2—Jeffrey 70 URB's, rubber-tired Cutters, Universal head, perfect condition.
1—Joy 11RU, rubber-tired Cutter with bugdusters, Universal head and dual tires.
2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on cats, 250 volt DC.

LOCOMOTIVES

2—Jeffrey 13 ton, type MH-110, 36", 42" and 44" Ga.
2—Jeffrey 10 ton, type MH-110, 42" and 44" Ga.
1—Jeffrey MH-124, 6 ton, 24" overall height.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
2—Jeffrey, 8 ton, type MH-100, 2" armor plate frames.
1—Jeffrey, 6 ton, type 2186, 22" above rail.
3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
1—G. E., 4 ton, type 825 Locomotive, 22" high.
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3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
2—Westinghouse, type 906, 44" and 48" Ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
2—Diesel Locomotives, 8 and 10 tons, Excellent.
8—Jeffrey MH-78 Locomotive Units, cheap.

LOCOMOTIVES (Cont.)

4—Jeffrey MH-88 Locomotive Units, real bargains.
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Locomotive Trucks and Spare Armatures for all the above.

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1—Menzies tandem Hydro-Separator. Belt Loading Booms.
1—Robins Car Shakeout.
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Feeders, Drag Conveyors and Loading Booms.

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3 Jeffrey 29UC Universal Machine on Cats.
1—Joy rubber-tired 11RU Cutter with bugdusters.
1—Goodman on Cats, 31" overall height.
1—Baby Goodman 212, rebuilt, 250 volt D. C..
1—Baby Goodman 212, rebuilt, 220 volt, 3 phase AC.
1—Goodman 312, 18" high.
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2—Goodman 512 Cutting Machines, 220 volt A. C.
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2—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
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LOADING MACHINES

16—Loaders, all types.
2—Jeffrey 61 CLR's on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley No. 3 Automat Loaders.
2—Clarkson Loaders, 26" above rail.

CONVEYORS

2—Jeffrey 52-B, 30" Conveyors, 1500' each. Excellent.
4—Joy 30" Underground Belt Conveyors, 500' to 2000' each. Excellent.
1—Barber Greene 30" Belt Conveyor, 1000'. Excellent.
1—Robins 30" Belt Conveyor, 1000'.
2—Jeffrey 52-B, 26" Conveyors, 1200' each.
3000' Conveyor Belt, 30".
2—61EW Elevating Conveyors
2—61WH 15" Room Conveyors, 300 ft.
2—Joy 15" Room Conveyors, 300'.
2—Joy 20" Conveyors, 300'.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.
3—Long 400 DBH 15" Chain Conveyors, 25 H.P. Motors, new.

CONVERTERS AND DIESEL PLANTS

1—50KW, G. E. TC-6, 275 volt Rotary Converter.
2—100KW, G. E. TCC-6's, 275 volt, Rotary Converters.
1—150KW, G. E. HCC-6, 275 volt, Rotary Converter.
1—150KW, 6 phase, Allis Chalmers Rotary Converter, 275 volt DC, perfect.
1—200KW Allis Chalmers, Rotary Converters 6 phase, 275 DC, perfect.

Converters and Diesel Plants (Cont.)

1—200KW, G. E. HCC-6 Rotary Converter, 275 volt DC.
3—300KW, G. E. HCC-6 Rotary Converters, 275 DC.
3—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
1—375KW Westinghouse Rotary Converter, 275 volt.
2—500KW Westinghouse Rotary Converters, 275 volt DC.
1—200KW Westinghouse Rotary Converter, 275 DC.
(all the above with 6900/13000 and/or 2300/4000 primary transformers)
2—150KW MG Sets, General Electric and Westinghouse.
1—200KW MG Set, Westinghouse, rebuilt.
1—200KW MG Set, General Electric, perfect.
2—150KW Allis Chalmers MG Sets, 275 DC volt, excellent, 220-440 AC volt.
1—300KW Westinghouse, 600 volt MG Set, rebuilt.
2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
4—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
1—500KW HCC-6 Rotary Converter, 6 phase, 600 volt DC.
1—Cummins 125 KW, Diesel with 250 volt DC Generator.
1—G. M. C. Diesel Plant with 60 KW Generator, 275 volt DC.
1—G. M. C. Diesel Plant with 85 KW Generator, 275 volt DC.
1—D-13,000 Caterpillar Diesel with 75 KW Generator, 275 volt DC.
1—Allis Chalmers Natural Gas Engine with 100KW Generator, 275 volt DC.
1—700 H. P. Shaft Hoist, complete.
Complete steam plant, will sell all or any part.
Boilers, like new, 1100 H. P. and 500 H. P. Also transformers, turbines, etc.
1—Complete Tipple with Cleaning Plants.

MISCELLANEOUS

20—Jeffrey Molveyors on rubber tires.
1—¾ Yard Shovel and Back Hoe.
1—¾ Yard Crane on Cats.
Battery Supply Tractors, rubber tired.
1—Cantrell Air Compressor on rubber tires.
10—Air Compressors, 1 H.P. to 40 H.P.
40 Mine Pumps, all types.
1—Differential 40 Passenger Man-Trip Car.
6—MSA Rock Dusters.
1—American Mine Door Track Cleaner—new.
2—Phillips Carriers, 44" and 48" Ga.
2—Barber Greene self propelled Bucket Elevators.
Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
45 Mine Cars, drop bottom, 42" Ga.
30 Mine Cars, drop bottom, 44" Ga.
100 Mine Cars, 18" high, end dump, 44" Ga.
100 Mine Cars,end dump and drop bottom, 20" high, 48" Ga.
1—10 ton Mine Car Scale with Recorder.
1—150 ton Railroad Track Scale.
15—Brown Fayro HKL and HG Car Spotters.
1—12 ton Differential Slate Larry.
Incline Hoists, 25 to 50 H. P.
1—Jeffrey 6' Aerodyne Fan.
1—Jeffrey 8' Aerodyne Fan.
1—Storage Tank, 8,000 Gallon.
2—Storage Tanks, 4,000 Gallon.
1—Storage Tank, 12,000 Gallon.
10,000 Five Gallon G. I. Cans, screw lids.
800 tons Relaying Rail 25# to 80#.
10 tons Copper Trolley and Feeder.
300 Transformers from 1 to 2,000 KVA, 110 to 13,000 primary volts.
400 Electric Motors, 3 to 250 H. P.
Huge stock of mine supplies.
Thousands of Other Items.

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There's a common saying that goes, "If you don't know your diamonds . . . know your jeweler." Of course, most contractors and users of earthmoving equipment know their machines well. They are alert to good engine performance, track and roller wear, condition of transmission, final drives, etc. However, sometimes it is a bit difficult for even experienced owners to appraise the true value of a used machine. That's why it pays to deal with a reliable dealer like Beckwith Machinery Company. We certify that every piece of used equipment is exactly as described.

If you have any doubts about the used equipment you plan to buy, see Beckwith. Check our "Bonded Buy" machines. Also look into the "Certified Buy." We'll furnish you with a performance guarantee in writing. As for bargains in used machines in the "Buy and Try" category, we'll let you try them for a period mutually agreed upon. Each "Buy and Try" unit carries our written money-back agreement. You are the judge. No other dealer will give you such a large selection or such guarantees.

Terms can be arranged to meet your requirements. Give us a call or stop in at one of our many locations.

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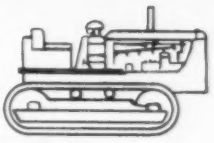

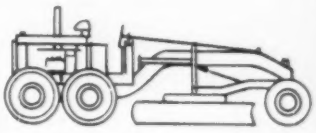

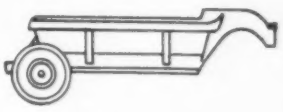

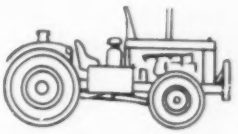

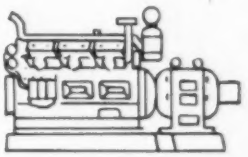

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723 Page Walking Drag, 130', 10 yd.
621-S Page Walking Drag, 135', 6 yd.
2400 Lima Dragline, 130', 5 yd.
5-W Bucyrus Monighan Drag, 120', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
3900 & 3500 Manitowoc Cranes
111-M Marion Drag, 190', 4 yd.
155 P&H Drag, 130', 3½ yd.
170-B Bucyrus Erie 6½ yd. Elec. Shovel
150-B Bucyrus Erie 6 yd. Elec. Shovel
4500 Manitowoc 5 yd. H. L. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
1055 P&H 3½ yd. Standard Shovel
1201 Lima 2½ yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
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600 Reich Heavy Truck Mounted Rotary Air Drills
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Sanford Day Mine Cars D-B 42 ga. 39" H.-5 Ton C.
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Int. T-D18 tractor angle dozer.
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500 KW-WH 250V-MG Set Complete.
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Wanted 2—6' Dia. Sheave bull wheels.

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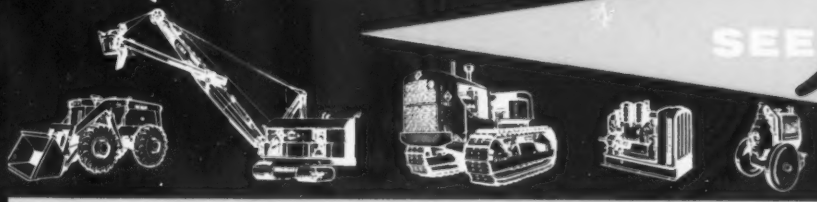

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BOOST the EFFICIENCY

A growing number of mine operators, faced with the problem of increased production "out-running" existing haulage facilities, are finding an economical solution in M·S·A MinePhone installations.

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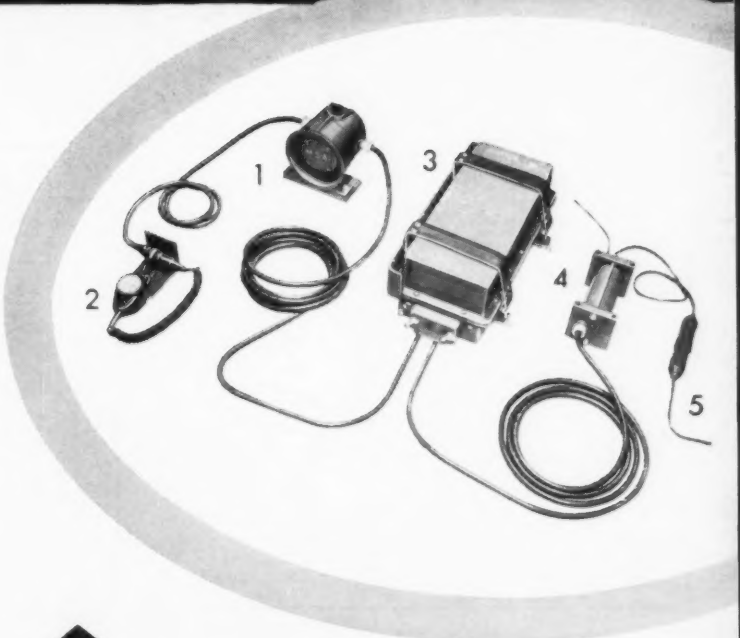

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